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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: A METHOD FOR IDENTIFICATION, ISOLATION AND PRODUCTION OF ANTIGENS TO A SPECIFIC PATHOGEN

(57) Abstract: Described is a method for identification, isolation and production of hyperimmune serum-reactive antigens from a specific pathogen, a tumor, an allergen or a tissue or host prone to autoimmunity, said antigens being suited for use in a vaccine for a given type of animal or for humans.

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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/31 C07K14/195 A61K39/00 C12N15/10 C07K16/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 02 094868 A (CHIRON SPA (IT)) 28 November 2002 (2002-11-28) the whole document, especially seq.id. 921 and 1169	21-34
P,X	WO 01 98499 A (UNIV SHEFFIELD; BIOSYNEXUS) 27 December 2001 (2001-12-27) page 6, line 1 -page 17, line 5 table 1 -/-	1,2,5-7, 9-16, 21-33

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/00546

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>DATABASE SWALL [Online] 1 June 2001 (2001-06-01) KURODA, M. ET AL.: "Staphylococcus aureus hypothetical protein SAV1129" retrieved from EBI, accession no. Q99UX5 Database accession no. Q99UX5 XP002239366 abstract</p> <p>---</p>	21,22,24
P,X	<p>DATABASE SWALL [Online] 1 December 2001 (2001-12-01) KURODA, M. ET AL.: "Staphylococcus aureus hypothetical protein SAV1731" retrieved from EBI, accession no. Q931P4 Database accession no. Q931P4 XP002239367 abstract</p> <p>---</p>	21,22,24
P,X	<p>DATABASE SWALL [Online] 1 June 2001 (2001-06-01) KURODA, M. ET AL.: "Staphylococcus aureus hypothetical protein SA1522" retrieved from EBI, accession no. Q99TD3 Database accession no. Q99TD3 XP002239368 abstract</p> <p>---</p>	21,22,24
P,X	<p>WO 01 70955 A (ELITRA PHARMACEUTICALS INC.) 27 September 2001 (2001-09-27) abstract -& DATABASE GSP [Online] EMBL; 14 February 2002 (2002-02-14) ELITRA PHARM.: retrieved from EBI, accession no. AAU34361 Database accession no. AAU34361 XP002239369 abstract -& DATABASE GSP [Online] EMBL; 14 February 2002 (2002-02-14) ELITRA PHARM.: retrieved from EBI, accession no. AAU37044 Database accession no. AAU37044 XP002239370 abstract</p> <p>---</p>	21,22, 24,28
X	<p>EP 0 786 519 A (HUMAN GENOME SCIENCES INC) 30 July 1997 (1997-07-30) page 1670 page 1791 page 2111 page 3234 -page 3237; claims 1-29</p> <p>---</p> <p style="text-align: center;">-/--</p>	21-34

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>SIOUD M ET AL: "PROFILING THE IMMUNE RESPONSES IN PATIENT SERA WITH PEPTIDE AND CDNA DISPLAY LIBRARIES (REVIEW)" INTERNATIONAL JOURNAL OF MOLECULAR MEDICINE, SPANDIDOS, ATHENS, GR, vol. 6, no. 2, 2000, pages 123-128, XP001062909 ISSN: 1107-3756 page 124; figure 1 page 126 -page 127</p> <p>---</p>	1,3,5, 11,12
X	<p>WO 00 68373 A (TVW TELETHON INST CHILD HEALTH) 16 November 2000 (2000-11-16) page 13, line 5 -page 15, line 27 page 26, line 24 -page 27, line 17; example 3</p> <p>---</p>	1,3,5,6
X	<p>WO 99 67376 A (INST NAT SANTE RECH MED (FR); INSTITUT PASTEUR (FR)) 29 December 1999 (1999-12-29) page 10, line 18 -page 12, line 12</p> <p>---</p>	1,3,5-7, 9-15
X	<p>LIN-FA W ET AL: "Use of a gene-targeted phage display random epitope library to map an antigenic determinant on the bluetongue virus outer capsid protein VP5" JOURNAL OF IMMUNOLOGICAL METHODS, ELSEVIER SCIENCE PUBLISHERS B.V.,AMSTERDAM, NL, vol. 178, no. 1, 13 January 1995 (1995-01-13), pages 1-12, XP004021120 ISSN: 0022-1759 page 2, column 2, paragraph 2 -page 5, column 2</p> <p>---</p>	1,3
X	<p>WO 00 45839 A (CISTEM BIOTECHNOLOGIES GMBH) 10 August 2000 (2000-08-10)</p> <p>page 3, paragraph 2 -page 6, paragraph 2 page 8, last paragraph -page 12, paragraph 3</p> <p>---</p>	1,3,5-7, 9,10, 12-16,20
A	<p>ORTEGA-MORA L M ET AL: "IDENTIFICATION OF CRYPTOSPORIDIUM PARVUM OOCYCT/SPROZOITE ANTIGENS RECOGNIZED BY INFECTED AND HYPERIMMUNE LAMBS" VETERINARY PARASITOLOGY, ELSEVIER SCIENCE, AMSTERDAM, NL, vol. 53, no. 1/2, May 1994 (1994-05), pages 159-166, XP000942738 ISSN: 0304-4017 the whole document</p> <p>---</p> <p style="text-align: center;">-/--</p>	1,9,10, 16-19

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/00546

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00 56357 A (NABI) 28 September 2000 (2000-09-28) page 1, line 30 -page 3, line 11 page 4, line 1 -page 7, line 28 page 9, line 27 -page 17, line 25; examples 1-12 ---	1,20
A	CASOLINI FABRIZIA ET AL: "Antibody response to fibronectin-binding adhesin FnbpA in patients with Staphylococcus aureus infections." INFECTION AND IMMUNITY, vol. 66, no. 11, November 1998 (1998-11), pages 5433-5442, XP002222372 ISSN: 0019-9567 the whole document ---	1
T	ETZ HILDEGARD ET AL: "Identification of in vivo expressed vaccine candidate antigens from Staphylococcus aureus." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 99, no. 10, 14 May 2002 (2002-05-14), pages 6573-6578, XP002222373 http://www.pnas.org May 14, 2002 ISSN: 0027-8424 the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 02/00546

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

As a result of the prior review under R. 40.2(e) PCT,
no additional fees are to be refunded.

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
1-20 completely and 21-34 partially (seq.id 3/56 and seq.id 413/414)
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☒ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: claims 1-20

A method for identification, isolation and production of hyperimmune serum-reactive antigens from a pathogen, a tumor, an allergen or a tissue or host prone to auto-immunity, said antigens being suitable for use in a vaccine.

Invention 2: claims 21-34, all partially

A hyperimmune serum reactive antigen from *S. aureus* consisting of the sequence listed in SEQ.ID.No.1 of the sequence listing; the pharmaceutical use of said antigen; fragments of said antigen; helper epitopes from said antigen; vaccines comprising said antigen; antibodies against said antigen; methods for the preparation of said antibodies as well as a screening method involving said antigen.

Inventions 3-599: claims 21-34, all partially

As invention 2, but limited to each single nucleic acid having a SEQ.ID. in the order as listed in the sequence listing, i.e. starting with SEQ.ID.No.2 and ending with SEQ.ID.No.598.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/00546

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